

Title (en)
METHOD AND APPARATUS FOR A HIGH RESOLUTION DOWNHOLE SPECTROMETER

Title (de)
VORRICHTUNG UND VERFAHREN ZUM HOCHAUFLÖSENDEN BOHRLOCHSPEKTROMETER

Title (fr)
PROCEDE ET APPAREIL POUR SPECTROMETRE DE FOND HAUTE RESOLUTION

Publication
EP 1511917 A1 20050309 (EN)

Application
EP 03734390 A 20030604

Priority

- US 0317572 W 20030604
- US 38563302 P 20020604
- US 16202302 A 20020604

Abstract (en)
[origin: WO03102372A1] The present invention provides a method and apparatus incorporating a spinning, oscillating or stepping optical interference filter (109) to change the angle at which light (102) passes through the filters after passing through a sample (105) under analysis downhole. As each filter is tilted, the color or wavelength of light passed by the filter changes. Black plates are placed between the filters to isolate each filter's photodiode. The spectrometer of the present invention is suitable for use with a wire line formation tester to provide supplemental analysis and monitoring of sample clean up. The present invention is also suitable for deployment in a monitoring while drilling environment. The present invention provides a high resolution spectrometer which enables quantification of a crude oil's percentage of aromatics, olefins, and saturates to estimate a sample's gas oil ratio (GOR). Gases such as CO₂ are also detectable. The percentage of oil-based mud filtrate contamination in a crude oil sample can be estimated with the present invention by using a suitable training set and chemometrics, a neural network, or other type of correlation method.

IPC 1-7
E21B 49/00; **E21B 47/10**

IPC 8 full level
E21B 47/10 (2012.01); **E21B 49/08** (2006.01); **G01J 3/06** (2006.01); **G01J 3/26** (2006.01); **G01J 3/433** (2006.01); **G01N 21/35** (2006.01); **G01N 21/64** (2006.01); **G01N 21/03** (2006.01); **G01N 21/85** (2006.01)

CPC (source: EP)
E21B 47/113 (2020.05); **E21B 49/08** (2013.01); **G01J 3/06** (2013.01); **G01J 3/26** (2013.01); **G01J 3/433** (2013.01); **G01N 21/3504** (2013.01); **G01N 21/3577** (2013.01); **G01N 21/359** (2013.01); **G01J 3/0202** (2013.01); **G01J 3/0262** (2013.01); **G01N 21/0317** (2013.01); **G01N 2021/855** (2013.01)

Citation (search report)
See references of WO 03102372A1

Designated contracting state (EPC)
DE DK FR GB

DOCDB simple family (publication)
WO 03102372 A1 20031211; AU 2003238875 A1 20031219; BR 0311819 A 20050315; CA 2488451 A1 20031211; EP 1511917 A1 20050309; EP 1511917 B1 20090805

DOCDB simple family (application)
US 0317572 W 20030604; AU 2003238875 A 20030604; BR 0311819 A 20030604; CA 2488451 A 20030604; EP 03734390 A 20030604